

THE ROLE OF DIETARY FIBRE IN PREVENTION AND IMPROVEMENT OF PREGNANCY RELATED BOWEL PROBLEMS: A REVIEW OF EVIDENCE

Poster No: 3/115

Author: Angie Jefferson, Registered Dietitian, UK

QUESTIONS TO BE ADDRESSED

- Why does the incidence of constipation increase during pregnancy? (see Figure 1)
- Potential complications of a low fibre diet during pregnancy?
- How much fibre is recommended for pregnancy (see Table 2), and how this compares to current intake?
- Which fibre is most effective at helping to prevent or treat bowel disorder?
- Which foods are rich sources of wheat bran fibre? (see Table 3)

INTRODUCTION

- The incidence of constipation increases dramatically during pregnancy and post-partum to around 40%^{1,2,3}
- Constipation is a key factor in the development of haemorrhoids, which affects some 25-35% pregnant women^{1,2}
- Constipation and Haemorrhoids cause considerable discomfort, but can also damage the pudendal nerve and impair the supportive function of the pelvic floor musculature³, leading to utero-vaginal prolapse
- It appears that constipation is as important a cause as obstetric trauma in the development of pelvic floor damage⁴
- Clinical guidelines across the globe agree that increased fibre (particularly wheat bran) is advisable to promote bowel health during pregnancy¹
- How much fibre, and from which food sources is less well defined

REVIEW METHOD

Electronic search of the Pubmed and Ovid databases, plus additional search for published guidelines, examining the role of fibre in pregnancy and pregnancy related bowel disorders was undertaken. Limits were English language and publication between 1950-2012. Almost 450 papers relating to pregnancy & fibre, constipation and/or haemorrhoids were identified. Interventions trials involving only pharmaceutical intervention were discarded.

Table 1: Constipation in Pregnancy – a Global Concern

	Trimester 1	Trimester 2	Trimester 3	Post Partum	Incidence in non-pregnant women ⁵
America ⁶	24%	26%	16%	24%	10-15%
Australia ^{7,8}	43%	-	-	17-37%	10-15%
UK ⁹	35%	39%	21%	17%	15-20%
Spain ¹⁰	30%	19%	22%	25%	10-15%

Table 2: Recommended vs Reported Fibre Intakes

Country	Recommended fibre intake for adult women g/day	Recommended fibre intake for pregnancy or lactation	Fibre intakes reported among pregnant women ¹¹	Fibre shortfall compared to ideal intake of 30g/day
UK	30g	-	17g/day	13g
EFSA	25g	-	19g/day	11g
USA (IOM 2005)	25g	28g	19g	11g
Australia & New Zealand (NH & MRC 2006)	25g	28-30g	22g	8g

The USA and Australia/New Zealand recommendations reflect the higher energy requirement of pregnancy

Other nations (such as Spain and the Nordics) also recommend higher fibre intakes for pregnant women of around 30g/day based on fibre in relation to energy needs

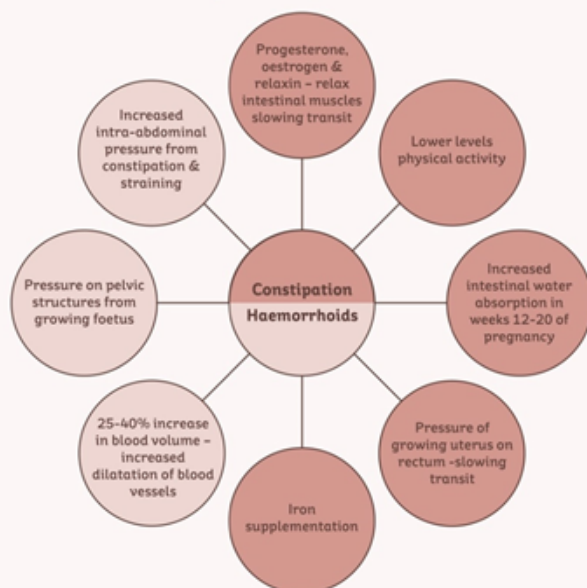
To achieve a physiologically effective stool weight when pregnant, a daily fibre intake of at least 30g/day is required¹²

All pregnant women should be advised to achieve a higher fibre intake of around 30g/day

WHEAT BRAN - THE FIBRE OF CHOICE

- Wheat bran is one of the most effective fibres for increasing faecal bulk and reducing intestinal transit time (EFSA 2010)
- Clinical guidelines for treating constipation in pregnancy emphasise wheat bran as the fibre of choice e.g. UK & Australia^{13,14}
- Ideally an increase in wheat bran fibre of 10g daily should be achieved as this is amount known to support healthy bowel function (EFSA 2010)

Figure 1: Factors Contributing to Constipation & Haemorrhoids in Pregnancy



Studies suggest that most pregnant women in the UK, Europe, USA, Australia and New Zealand would benefit from an increase in fibre intake of around 8-13 grams a day in order to help prevent constipation and haemorrhoids.

Table 3: Sources of Wheat Bran Fibre

Food source	Wheat bran fibre per 100g	Wheat bran fibre per typical portion	Typical portion size
Wheat bran shreds	27g	11g	40g bowl
Bran biscuits	16g	6.4g	2 biscuits (40g)
Bran flakes	15g	6.0g	30g bowl
Wheat pillow style cereal	12g	5.2g	45g bowl
Malted wholewheat cereal	10g	3.9g	40g bowl
Wholemeal flour	9.0g	2.7g	1 tablespoon (25g)
Mini wheat pillows	8.0g	3.2g	40g bowl
Wholemeal pastry	6.3g	3.2g	50g portion
Wholemeal pitta bread	6.2g	3.9g	1 medium (60g)
Wholemeal scones	5.2g	2.6g	1 medium (50g)
Wholemeal bread	5.0g	2.6g	2 medium slices
Wholemeal spaghetti	3.5g	7.7g	220g (cooked)

ARE MIDWIVES EQUIPPED IN TERMS OF KNOWLEDGE AND/OR SKILL TO ADVISE ON DIETARY CHANGE?

A second literature search of midwives' knowledge of nutrition, and their skill set for nutrition counselling, was undertaken. Papers relating to developing nations and breastfeeding were discarded.

The conclusion was clear: Midwives across the globe are at present not adequately trained in nutrition and lack both the knowledge and confidence to provide women with advice to increase fibre intake.^{1,2} Simple and specific guidelines are needed in order to enhance the care of pregnant women.

CONCLUSIONS

- Constipation in pregnancy is not just unpleasant; it is also a risk factor for the development of further disease/complications.
- It is important therefore to help pregnant women to avoid constipation.
- Selecting higher fibre foods can help to achieve the recommended level of 30g dietary fibre per day for pregnant women.
- Wheat bran fibre is one of the most effective choices to help relieve constipation.

References:
 1. Jefferson A et al (2013) Using wheat bran fibre to improve bowel habits during pregnancy - a call to action. *Brit J Midwifery* 21: 204-212
 2. Jefferson A et al (2014) Wheat bran fibre for improving bowel habits during pregnancy. *Australian Midwifery News* 48-49
 3. Cullen G et al (2007) Constipation and pregnancy. *Best Pract & Res Clin Gastro* 21: 807-818
 4. Amstutz C et al (2010) Constipation: a potential cause of pelvic floor damage? *Neurogastroenterology and Motility* 22: 150-3
 5. Suarez HC et al (2011) Prevalence of, and Risk Factors for, Chronic Idiopathic Constipation in the Community: Systematic Review and Meta-analysis. *The American Journal of Gastroenterology* 106: 1582-1591
 6. Bradley CS et al (2007) Constipation in pregnancy: Prevalence, symptoms, and risk factors. *Obstetrics and Gynecology* 110: 1351-1357
 7. NICE (2010) Managing Constipation in adults. Viewed at <http://www.nice.org.uk/guidelines/g149>
 8. Perlen S et al (2013) Maternal depression and physical health problems in early pregnancy: Findings of an Australian nulliparous pregnancy cohort study. *Midwifery* 29: 233-9
 9. Dertyschire E et al (2006) Diet, Physical inactivity and the prevalence of constipation throughout and after pregnancy. *Matern Child Nutr* 2: 127-134
 10. Ponce J et al (2008) Constipation during pregnancy: a longitudinal survey based on self-reported symptoms and the Rome II criteria. *Eur J Gastro Hep* 20: 56-61
 11. Blumfield ML et al (2012) Systematic review and meta-analysis of energy and macronutrient intakes during pregnancy in developed countries. *Nutrition Reviews* 70: 322-336
 12. Spiller R et al (1993) Correlations of Transit Time to a Critical Faecal Weight (CFW) and to Substances Associated with Dietary Fiber. In: *Spiller (Ed) CRC Handbook of Dietary Fiber in Human Nutrition* (2nd edn). CRC Press, USA.
 13. NICE guidelines (2012) Antenatal care for uncomplicated pregnancies, March 2016. See www.nice.org.uk
 14. Australian Health Ministers' Advisory Council 2012. Clinical Practice Guidelines Antenatal Care - Module 1. Australian Government Department of Health and Ageing, Canberra. <http://www.health.gov.au/internet>